

A man named Howard Moreland, who actually became rather famous from purporting to reveal the design of the H-bomb in the Progressive magazine (a project that I did not sympathize with, to his surprise—he and the Progressive magazine expected me, as the revealer of the Pentagon Papers, to be very staunch in supporting their right to put out any information whatever). And they ran up against my answer to the question that I'd often been asked, "Where do you draw the line?" or, "Are there some secrets you would really endorse keeping?" To which I'd always answered, "Yes, the design of nuclear weapons and especially thermonuclear weapons." Whether he in fact contributed to the possibility that somebody would get a thermonuclear weapon sooner, rather than later, he doesn't believe—Progressive chooses not to believe—I hope that it didn't have that effect, in any case we had a fairly rough relationship because of that. And I haven't read his book called Secret that Exploded as a result. I'm not anxious to read what he has to say about our interaction on that.

But in fact he's a very intelligent guy who works for the coalition for new foreign and military policy, Howard Moreland. And he did, after he wrote his book, hear me give a couple of lectures on the relevance of first use threats to our strategic forces and that's the relationship between the strategic tactical and theater forces and the relationship of those elements of our nuclear forces to our expeditionary forces. And he set out to do—he recognized that if this was valid that it was something that was certainly not appreciated by very many people including in the

arms control community. And he set out as one of the directors for the coalition for or the executive people of the coalition for new foreign and military policy, to put together a slide show that would be of use in particular in bringing home some of these relationships to people in Washington in the lobbying community, in Congress, and elsewhere. And I saw this recently and thought that it might be of interest to you. I had him send it to me and I just got the slides last week. I've never tried to present them myself. I've seen him do it once. As I say they are based essentially on, initially, the origins of this, was my interview on first strike that appeared in Inquiry magazine and then the "Call to Mutiny" paper. He's also been a good deal influenced by Chris Payne, Fred Kaplan and Randy Forzburg. So the effect is then that these slides were put together to illustrate a number of the things we've been talking about in these lectures. And in particular I'm going to emphasize the later slides which show you pictures of some of the new weapons that are the subject of this lecture in particular. We've caught up to... I don't want you to leave the course without having a somewhat more concrete sense of what these things look like and what some of the people perhaps look like that we've been talking about. So I'll try to go over the early ones fairly rapidly.

I wish I had a little indicator here. Can you hear me up there? So I'll have to say, rather than just say next slide all the time, OK if I tap this? OK? See that? OK. I'll go through the first ones then fairly rapidly to get to the later ones which have more to do with what we're doing. I guess I have to get out of the way here. No I don't. Off the scene. I don't know if I need this or not. OK. Let's try it.

I don't know if we need lower lights or not, maybe we do. Yes? OK.
Focus looks like. And how about a little lower light here. I need a
light up here. Can you lower the main lights? Not a flashlight in the
house, obviously. Is there a flashlight up there that I can read this
with? OK. How about just on the chalkboard, put everything else out.
OK. Now turn the other lights out.

VOICE: John, get your headphones on, I'm talking to you. Do you see
the switch on the right covered with masking tape?

The top lights are what we want off, OK? How's that? OK. Can you see
that all right? OK. I think it needs a little more, does it need a
little more focus—better focus? There. How's that? Wait. This is
apparently the second half where we are starting. OK. Well, that may
be. We'll see if we do the first half at all. We'll see how long it
takes to get through this part. Ah.

OK. What that is is a...This is an experimental course altogether. This
is an unusually experimental lecture. Last week was an experiment in
trying to give a lecture when I had a fever. That was a failure. Write
that one off, sorry.

OK. Back to the drawing board. OK. Lights off on the top, there's
nobody up there. All right. While we're waiting for... it looks like
something's happening up there.

This is, there's a couple of pictures of Pershings together. I'm not sure which one this is yet, but I believe this is a picture of a Pershing II maneuvering. There is a radar scanner in the nose of the reentry vehicle which takes a picture of the target and instructs the guide vanes to steer the warhead towards the bulls eye. I think in some earlier slides he has pointed out the main difference of this Pershing II from the Pershing I in design (aside from its longer range) are these guide vanes which allow it to be maneuvered near the target. The Pershing...I did want you to see a couple of these pictures, of what these actual weapons look like. The Pershing II is the only warhead now in the world which is designed to maneuver for greater accuracy, or to maneuver at all as it approaches the target. It has a radar picture. This is meant to illustrate the radar picture in the actual nose cone, in the nose of the reentry vehicle. And as it's coming in then, it maneuvers so as to bring the radar picture in its nose into correspondence with the radar image that it's getting from the target. With this technology it's the Pershing II can land within 140 feet and it's designed to be somewhere between 90 and 200 feet, say of a target on a flight time of about 1,000 miles, which is, you know, it is less than intercontinental range. A warhead of only ten kilotons will be enough to destroy a silo by a cratering effect. By being three times more accurate the warhead can be thirty times less powerful than the MX and still have the same first strike capability. Now the Pershing II initially does not have the range to get most of the targets the MX will be able to get—deep in Russia. There is some controversy right now as to whether it can actually reach Moscow Command Post, a rather key point. The Russians, based on their

monitoring of our tests, claim that it does have that range right now. It's a difference, by the way, of whether it has a range of about 1,000 miles or 1,200 to 1,400 miles, a rather small difference.

The Defense Department says that it does not now have quite enough range by a matter of a few miles—of a hundred to two hundred miles perhaps. Obviously with more fuel, more powerful fuel, or a lighter warhead it could easily attain that range. So this is a small point. The question of whether it can reach Moscow or not, a heavily hardened command post, bears on the concern the Soviets have expressed that the Pershing represents an ability to launch an essentially a no-warning attack against their command post and thus implement what our Pentagon has called a "decapitation strategy" which we have certainly made no secret of our desire to achieve. And the Pershing would be potentially a key element in that. The Soviets have warned—in fact several Soviet sources asserted—that if the Pershing II went into Europe the Soviets would go on a launch-on-warning system an automated launch-on-warning system since there would not be time in the variously computed eight to twelve minutes that the Pershing would take to reach the Moscow environs for a genuine political decision and even perhaps for a human decision so that the decision to at least release warheads and perhaps to send nuclear warheads off would have to be made essentially by computer based on radar warning.

Yes? Oh, you're starting now. OK. Well, we'll go through those fast. We're going to try apparently from the beginning. I'll go through these ones fast, we'll work up to the Pershing. OK.

These are mostly all from the Defense Department or Aviation Week this is not Howard Moreland's conception privately. I'll go over his next one. His point is that the great nuclear arms buildup by the super powers is taking place. (That is just possibly upside down.) Which critics he says fear will increase the likelihood of nuclear war. There is also another social force he says is coliding with this move toward the super power buildup, namely an unprecedented massive popular opposition (next) which, he says, if it is to succeed he believes must turn its attention beyond a discussion of the effects of nuclear war and investigate its possible causes. In other words we must study nuclear strategy. This is a picture of Hiroshima after. (OK, not so fast.) This is the map of Germany with the probable invasion routes connecting East and West Germany. Howard points out, as I say I am quoting some of this which as I say is largely taken from lectures I've given in the past so there is an overlap here. The original purpose of our arsenal was not to prevent a nuclear attack against America, but rather to prevent a Russian invasion of Western Europe, probably through one of these routes connecting East and West Germany. (Next) (laughter)

This is to accompany a quote from Henry Kissinger as follows: "From 1945 until 1970 this anticipated Russian invasion..." came from here that...I can see that. (laughter) It's ominous. How I'd look from that angle. "From 1945 to 1970 this anticipated Russian invasion was prevented by three factors. First, by the American predominance..." (this is a quote from Kissinger) "by the American predominance in strategic nuclear striking power," (now this is a quote from Kissinger worth having) we've

prevented this by "American predominance in strategic nuclear striking power capable of disarming the Soviet Union or at least reducing its counter blow to tolerable levels." Second by a vast American superiority in so-called theater nuclear forces. This actually as a nuclear cannon. I think he meant to illustrate that but actually that would be closer to what is called a battlefield weapon. Canons of that size tend to have ranges of six to twelve miles, in other words they are very close to the front lines. What we now call theater forces have ranges from 600 to 1200 miles. These would be the tactical nuclear forces. And third, in Europe, says Kissinger, continuing here, "by substantial American and allied ground forces that posed at least a major probability that Soviet ground attack would trigger the nuclear retaliation of the United States." End of quote.

So the goal there was to assure the Soviets that they would meet, as we call them, trip-wire released forces on the ground or forces substantial enough so that they could penetrate them only with an unequivocal attack on their own part, not just with a minor skirmish. And if they did so they were assured by an America superiority in tactical and theater nuclear forces that they would be demolished—the armies would be demolished. And if necessary the United States would go to an allout attack on the Soviets. This is a recent quote by the way by Kissinger. I think the date on that is 1979.

This, by the way, is a picture of General LeMay which you've heard about quite a bit. A nice looking fellow. I quote here from an article by

David Rosenberg not on your list I don't think, in International Affairs. A secret briefing in 1954 when LeMay said quote, "If the United States is pushed in the corner far enough we would not hesitate to strike first." He predicted that his bombers could reduce the Soviet Union quote, "to a smoking, radiating ruin at the end of two hours." (Next)

OK. This is possible because the B-47 (how's the focus on this? Can you focus better? How's that?) OK. The B-47 bomber was a potent first strike weapon. The Soviets had no comparable bomber force. As late as 1960 almost all of the expected 600 million fatalities from a full scale nuclear war were expected to occur behind the Iron Curtain. The Soviet Air Force never had significant numbers of long range bombers but in the late fifties both sides began to develop ballistic missiles with nuclear warheads.

Let me pause here for a second. And go back to Kissinger as of 1957, or 22 years earlier when he really burst on the scene with a book with the title of this course, Nuclear Weapons and Foreign Policy. That book already took as a premise the existence of an extremely stable balance of retaliatory power on both sides—a large and stable... . In other words a situation he thought existed either already by '57, which was the year the Sputnik and the ICBM were demonstrated by the Soviet Union, or at least in a very few years where neither side could launch a first strike without in fact, assuming that it would suffer enormous casualties amounting to annihilation and approximately equal to the other side—that neither side had any real advantage in striking first. This was

Kissinger's assumption and he was at that time a rapporteur for a council on foreign relations study group—that was the origin of that book. And this assumption reflected a consensus then of people in his study group who ranged from Edward Teller to Gavin, I believe was in this, General Gavin, and a number... General Gavin (probably not familiar to most of you but more familiar twenty years ago in the Army), and a number of Army, Navy, and Air Force strategists so it represented a high level, elite sort of assumption as to the way things were going.

That did not reflect an assumption of Soviet superiority. On the contrary, it assumed that superiority was meaningless. A phrase, you notice, that is associated with Kissinger again, twenty years later, when he was Secretary of State. He said, "What in the name of God is the meaning of strategic superiority at this level of forces?" He said, "What could you do with it?" He asked the question, as I say, as Secretary of State. He was then responding to criticism by what was then perceived as right wing forces—now the U.S. government—who were claiming that Henry Kissinger had betrayed American interests with his boss and along with his predecessors like MacNamara by allowing our superiority to be lost, essentially. And he was saying at this level of forces as of (that was then somewhere around '74 he made that statement, which has been quoted back at him by the Reaganites a great deal lately) to defend the position that there was really no way to preserve American superiority in the world of the seventies.

Now this may be confusing but what I am saying is, that is what he was saying in the world of the fifties and it was at that moment in '57, widely believed to be true, that that had arrived. That was based in

part on a false assumption—that the Soviets were bending every effort to acquire both a large bomber force and a large missile force as fast as they could and could not be deterred from doing so by really anything we were able to do including any proposals we might make for arms control. Negotiations were no way of averting that possible Soviet superiority or at any rate, parity.

Let me suggest to you (on the basis of the lectures we have been [having] so far... approaching the end here) that there was genuine concern about this prospect of a Soviet buildup and that it was not based on the notion of a Soviet superiority, then or now—which really was not foreseen as a meaningful possibility. What was feared was Soviet parity. To put it another way—a parity of retaliatory force. Yet a third way (that does not stress the balance between the two forces): what was feared was that the Soviets would acquire for the first time a retaliatory (what was believed to have happened) a Soviet retaliatory force which would deprive us of a credible threat of escalating to allout war under any circumstances.

And since that threat lay behind, in particular, our defense of NATO, the assumption was that the Soviet acquisition of a major strategic capability, without being superior in any way, deprived us of this nuclear superiority of our first use of our first strike threat and thereby made it less credible that we would be willing to escalate from conventional war to nuclear war, even on a local level. Because that escalation could be made (which, then as now, was the basis of our NATO planning) could be made plausible only if we had reason to believe that the Soviets might not match it—at least it seemed that way at that

point. In other words, only if our threat could be unilateral could it be really credible.

Well, initially our threat was unilateral because we alone possessed the weapons. For a longer period we alone possessed delivery means even after the Soviets did have nuclear warheads. But the notion was that we can only keep our use of the nuclear weapons unilateral and thereby the threat credible if we have a plausible threat that if they retaliate to our use of nuclear weapons, we will escalate. Again, our escalation would seem to be credible only if it would not be matched. If it were matched the destructiveness would be such that it would not seem to benefit us and would not offer us any prospect of victory.

Why would the Soviets not match our escalation? If, and only if, they thought that if they matched our escalation, or increased it—if they went still further, without going all the way, let's say—we would at some point choose an allout disarming attack.

Our NATO plans (you've heard me say what amounts to this a number of times, but it bears repeating, I think) our NATO plans have always... let me put it this way... have never permitted (acknowledged the possibility) of the United States president accepting stalemate or defeat at the conventional non-nuclear level in Europe at the hands of Soviet troops. If the defeat is in the offing tactically, or if the war should seem to be stalemated with no prospect of repelling the Soviets, our plans have always called for nothing but an escalation at that point. We are committed by our planning, by our unilateral declarations, by our treaty commitments, to escalate that war.

But the problem that various people have been trying to cope with in recent years... increasingly as the Soviets have acquired a retaliatory capability the threat of our escalating becomes less credible because it is less likely that we would expect our use of the weapons to be unilateral—or our escalation to be unilateral. And if we went to first strike, if we went to a strategic allout strike, that would be essentially suicidal. We could not pretend to anyone in advance that we could see an advantage in doing that. This was, as I've said before, the situation that we were very realistically perceived as being in by the late 1960's. But we already believed ourselves to be approaching that in the late '50s. And I mention this to draw attention now to the attempts to escape from that situation when it was first perceived. Even though then it was an illusion—or it was premature.

Specifically there were three or four approaches. Henry Kissinger's approach, the one that made him famous and controversial in the first instance was to argue that we did not need to rely on a threat to escalate nuclear war for our threat to initiate nuclear war to be credible. He argued (in the course of a long book based on these assertions or speculations that were provided to him by people like Teller and people at Livermore Labs and some people in the army) that a two-sided tactical nuclear war could be won by the United States—could be advantageous for the United States if it were limited enough—if the Soviets were led by their own self interest in some way to accept rules that would essentially keep the weapons away from the cities, permit their use on our own territory, in defense of our own territory, various rules that were suggested.

This solution to the problem posed by Soviet retaliatory force has essentially never been revived as a serious argument since even Kissinger gave it up in about 1961.

TURN TAPE OVER

• ... the answer to that seemed to be only that their fear that we would match their escalation. But that in turn would not be to our advantage particularly.

Kahn's argument was that unless the United States had a credible ability to initiate an allout strike—a disarming strike—there was really no basis to deter the Soviets from escalating. Well, you've heard some of these arguments before. Here I just want to say that a way of seeing what was a stake here, and what is still at stake in a lot of these strategic discussions, is this...

The United States, and it is not limited to Europe by any means,... Going back to the statement I've quoted by Nitze several times before which he first expressed to Atchison, he says, in 1949 at the time of the Soviet A-bomb: the Soviets, he put it, had conventional superiority in Europe and on the borders of Europe, and that could not, for political and economic reasons, be taken away from them. In a physical sense, he said, we could do it, but especially for political reasons, people would not be willing to match them. Therefore, we must rely on our nuclear superiority to counterbalance that Soviet conventional superiority and we must maintain that superiority as long as possible.

I want to extend Nitze's argument in one big direction to show how I think it really has been the basis for a lot of our strategic planning ever since. It is not only Soviet conventional forces that confront U.S. interests with a threat of U.S. tactical defeats in the world at large. In fact, in the wars we have fought since World War II, we have not once confronted Soviet troops, although we have faced an accepted stalemate—often at very high levels.

How does that come to be? Our standing forces are larger than nearly any other single enemy that we could confront. The U.S. perceived then and still does (or the people, let's say, with the most influence over U.S. foreign policy) perceive us as having interests in parts of the world very far from our shores—far from our ability to reinforce or to supply logistically, despite our unparalleled Navy. And as we have actually experienced, in Korea, in Indo China, and have faced similar prospects elsewhere, we can be outnumbered in the place we choose to fight or to intervene—not only by Soviet troops who have, in fact, not confronted us, not only by Chinese troops who have confronted us in combat only in Korea (but there was a prospect in the Quemoy case), but by Indo Chinese, by Koreans, or it could be by various factors in Iran, or in the Middle East.

In other words the superiority of forces, conventional forces, that constitutes a problem for the U.S. in the eyes of these policy makers are not only Soviet forces. I repeat, they are the forces of Third World nationalists which are not only globally superior in mass, but in any particular case have the capability of outnumbering us since they live there, or they live next door to it. We have worried indeed, about

Chinese intervention, for example, into Indo China as they did intervene in Korea. And obviously we would worry about direct Soviet confrontation in a place like Iran or Turkey that is right on the border of the Soviet Union, and possibly elsewhere.

Randy Forzburg, in an otherwise I think very good article that is about to come out in World Policy (I guess that's the title—the journal of the World Policy Institute), has summarized this by saying that the United States nuclear superiority in nuclear weapons was thus meant to counteract Soviet conventional forces anywhere in the world—not merely in Europe, and not merely their nuclear forces. I think that's somewhat misleading. As I've said several times here, Soviet conventional forces, while a prospect in places like Iran or Turkey or Cuba for example, have not been who we've actually fought, or who we've actually expected to fight in a number of places.

Virtually every enemy we've confronted in the crises of the post war era has been an ally or client of the Soviet Union. Client in the sense that we have client states that rely on us for arms sales, for example, or for arms of various kinds, perhaps for finances and for other benefits, with or without a formal alliance. So Soviet prestige, and to some extent (one would assume) interest, is invested in those areas where we find our interests (which I haven't defined particularly—I'll come back to that) but where we find our interests challenged. And we feel a need to protect our interests by sending in troops.

The likelihood that the Soviets would supply troops in response to our bringing in troops in most of those places is not very large for two reasons. One, the Soviet is a landlocked power and for a number of

reasons has never developed what we would call the projection forces, the ability to send forces and to operate tactically at very long logistical trains from the United States. We have our amphibious transports. I've spent about a year of my life sailing around on various amphibious transports in the marines. We have the marines. The Soviets have essentially nothing comparable to our large transports and, until recently, no carriers to support them with. They don't have any of the large carriers we do to provide tactical air support or air defense for these, or the kind of navy that would allow them at very great length to supply and protect a force at great distance from the United States. So the chance, actually, that they would send troops in at best is not very large.

A second point is that given the U.S. nuclear weapons and the threats that we've made from the very beginning, it is then obvious that actual conflict between U.S. and Soviet troops would have been highly dangerous for that entire period. There is a quote that we'll come back to later in this week's New York Times in an article by Leslie Gell on the risks of nuclear war; a quote from an interview he had with Jim Schlesinger which I think Gell misinterpreted—I'll come back to that. But the quote is "You should not underestimate the willingness of a national leader to take great risks to avoid losing a crisis. And a crisis in which both sides had troops involved has always appeared to have the potential for escalation even if that should have been totally suicidal for the Soviet Union. The chance that it would go in that direction has always been considered likely. So the Soviets have always been very, very cautious about committing troops in a place where the U.S. first committed

troops. That's why putting troops in Europe strategically had the logic of being pretty strong protection for Europe. It would apply in the Middle East and elsewhere. And that's been true all along—up to a point.

However, if we go through the list of first use threats that I've described in this course earlier and that's in some of your reading, and look for patterns (and this is a whole body of data that most people trying to understand this process have ignored) certain things leap out. And one that I can't say really leaped out at me, it occurred to me fairly recently in this connection. In nearly every one of those cases the U.S. did fear the possibility or even the likelihood that the Soviets would retaliate if we had to carry out our threat of using nuclear weapons.

One can't know whether the presidents put that likelihood as high as the intelligence agencies did. He may have thought they were exaggerating or he may have thought they underrated it—one doesn't really know. One knows that the president did go ahead with the pressures (as in Quemoy) in the face of that and gave strong signs, I think, of being willing to accept, if necessary, that retaliation. But clearly the prospect of that could only be deterrent to us in its direction. It did not deter us entirely from threatening, or even involving ourself at various times. But the direction of effect of that had to be to make us more cautious—less willing, for example, to use nuclear weapons as early as the joint chiefs were willing to do.

You remember this from the Quemoy case, for example, where Eisenhower strongly asserted privately his willingness to use nuclear weapons if necessary but at the same time ordered the forces in the Pacific to

prepare for using non-nuclear forces initially, which went against all of their planning and, you may have read, upset the head of the Pacific Air Force greatly (Lawrence Kuder) since we hadn't done any prior preparation for that. That shows a caution on Eisenhower's part. He was going against the judgment of his military commanders who thought that the nuclear weapons must be used very early.

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But surely that caution which reflected various things, including the concern of our allies and the concern of our own public on the one hand, reflected the reality as they saw it, of the possibility that if we used those nuclear weapons the Soviets would hit the Seventh Fleet or Taiwan, or in the case of our Korean threats, Japan. In the case of our offer to the French of nuclear weapons over Dien Bien Phu, Bidot was concerned of retaliation against France or a war getting out of control as well as the possibility of killing his own troops in Dien Bien Phu. But if we had our used forces against China he expected retaliation. And this was true in other cases as well.

Another form of retaliation that our officials were strongly concerned about—what we call horizontal escalation. This administration is really the first to talk very openly about the possibility that we would respond to Soviet challenge in an area where they had superiority by shifting the conflict, or one should say adding another conflict in a place where we had local superiority of some sort. The example in particular in this administration was the possibility of our blockading Cuba in answer to Soviet moves in the Middle East or elsewhere and in

fact we even talked about doing that more generally—perhaps pressing them in the Middle East somehow—in Afghanistan conceivably. It's what we call a horizontal escalation.

Where did we get that idea? One guess might be that it was very much in our minds that it was something the Soviets might do. In nearly every one of these crises again that came up. The idea that the Soviets would retaliate against Japan if we hit the Chinese in Manchuria is already a kind of example of horizontal escalation, although it's pretty much in the same area. If they hit Taiwan that would be still further away, horizontally. I think a better example comes up with Dien Bien Phu and comes up very much with Cuba. As somebody who slept in the Pentagon during the Cuban crisis and was very much aware of what people (at least at the level just below the cabinet) were concerned about, I can say that there was a very intense focus on the likelihood that our hitting missiles in Cuba would lead to the Soviets hitting our IRBMs, our Jupiters in Turkey—which was on their border as Cuba is close to us. And likewise that our blockade of Cuba would be countered by a blockade of Berlin—a new Berlin blockade.

Notice that the same places constantly crop up here in our fears and that's very natural. The geography is constant. The fact is that Berlin constitutes steadily an area where the Soviets could confront us with an extremely important tactical loss and where the conventional forces balance is enormously on their side. So if we gave them trouble in Cuba where they are extended at the end of a long logistic train—where they are inferior conventionally—they have the ability to shift that to Berlin.

People like Bundy, MacNamarra, Rusk and others (high level people) who, on the anniversary of the Cuban missile crisis recently all published their beliefs that the strategic balance had had nothing to do with our success in the Cuban missile crisis, have simply ignored, or forgotten, or repressed in their thinking, that aspect of the crisis. The expectation was, as you will see in the readings, the reading by Bobby Kennedy (and others by Sorenson) that [President] Kennedy believed not only that they were likely, or might, counter-escalate (or I should say, horizontally escalate) to Berlin, or to Turkey—places where they had a conventional superiority. He believed virtually certainly that they would.

That did not deter him entirely from what he did do, but I repeat could only be a very significant inhibition on what he did do—how fast he moved and at what level he started to take some of these moves that would have such a reaction. It so happened that what he did do was enough to win in those cases. But was that unrelated to the strategic balance? On this side of the argument, it seems to me, the people that I worked for and with—Bundy, Rusk, MacNamarra and the Democratic administration, the liberals, more or less anti-nuclear people are simply wrong, I think—wrong in their memories, wrong in their analysis. And people like Eugene Rostow or Haig or others who said that Kennedy was able to move as decisively as he did in that situation, not simply because he had a conventional superiority in the Carribean, but because he had an immense strategic superiority (nuclear), I believe are almost surely right—both in Kenndy's mind and in the Russian's mind.

After all, if a conventional superiority is all that really counts and determines the outcome in one of these situations, why doesn't it determine the status of Quemoy? Why doesn't it determine the status of Berlin? Why doesn't it determine the status, for that matter, of Iran which the Soviets are not, at this point, running. Or Turkey where we actually did base IRBMs on their border. How about Germany as a whole? How was it that with 20 German divisions in East Germany, West Germany was able to be rearmed with nuclear weapons? Something that the Soviets can be expected to have been sincerely and deeply urgently concerned about, but weren't able to do anything about it. That was not because the conventional balance was against them, in that case, quite the contrary. In all of those cases, it strongly favors them.

Kennedy made the point, speaking of Berlin, some say that Berlin is indefensible. But he said no place is indefensible if brave men, other places have been indefensible, but no place is indefensible if there are brave men determined to defend it. Does he really believe that the balance of brave men, in that situation, would protect Berlin then or now? If it were not for the belief on the Soviet's side, that there were men in Washington who, prepared in the event that the brave men in Berlin were captured or killed, to begin the process of nuclear massacre. A willingness to do that, by the way, is not exactly the same as bravery, and it certainly is sured up a good deal by any calculations your military can serve you, that it would be possible for the massacre to be one-sided. If the balance had been the reverse of what it was, if it had been the U.S. that had ten operational missiles at that time, and the Soviets, who had thousands of deliverable vehicles, I think the

likelihood that the U.S. would have undertaken to be a conventional conflict with Soviets troops in Cuba in 1962, was very, very low. All that is to support, in other words, the side of those who say it does make some difference as to what the balance is. I can sum this up then, I've mentioned the possibility of Soviet horizontal escalation, the possibility of their retaliating with tactical nuclear weapons.

One other possibility has been mentioned in the last ten years or so, though it was first mentioned ten years before that. Instead of trying to fight a tactical nuclear war, a two-sided, tactical nuclear war, it could be more controllable, which would almost surely get out of control, with low level commanders tossing these Hiroshima-sized weapons all over a populated landscape, like Europe. Instead, the use of nuclears could be far more controlled if it was controlled from the White House, not by a colonel in Europe or elsewhere. And you limited your use of nuclears to a few carefully chosen attacks, perhaps in the homeland of the Soviet Union itself, to warn of what might come. But at the same time, to keep the thing far more controlled, to hit targets, perhaps, that are worth hitting, to avoid cities, to avoid targets that would send the thing out of control.

This led to a type of strategizing, described as limited strategic war or limited strategic retaliation. In other words, rather than initiating first use of weapons against battle-field troops, you might hit an air base, or a logistics base, conceivably a low-level command center at some divisional command center, or some military targets, even hardened sylos in the Soviet Union, to punish them for what they had done so far and to warn them that the situation could get out of control. This sounded weird when it was first raised by Herman Cohn and

others in the late fifties, early sixties. There was a book on the subject, Limited Strategic War, edited by Klaus Norr and Thornton Reed. It never got a lot of public attention until the early seventies, when Jim Schlesinger, who had been working on such ideas at rand, took them up as Secretary of Defense, and said we had to have a weapon like the MX to enable us to hit a hardened military target in the Soviet Union, in retaliation for the Soviets to do the same, if they did the same to us. It's hardly imaginable that the Soviets would do such a thing to us; nobody has ever explained that very well.

The explanation, really, for examining such a possibility at all, or taking it seriously was this, which they weren't willing to reveal to the public entirely: How do you respond to certain major, what Herman Cohn would have called provocations, by the Soviet Union, if two things were essentially ruled out? Disarming first strike, because of infeasibility of disarming the other side, or tactical nuclear warfare is ruled out, because of the likelihood that it will lead to retaliation and devastate the area you are trying to defend. If you rule those both out, what can you do other than surrender, if you cannot deal with the thing in non-nuclear terms? And this idea was invented as something that didn't look promising to anyone, really, I would say, that always had the obvious defect that it could lead to retaliation by the other side, or whichever side did it first. It could look marginally better than the two other alternatives, of escalation, which were being ruled out; the tactical nuclear warfare or the all-out warfare.

The current, by the way, the current build up of the MX and other counterforce weapons, in the last ten years, has been accompanied by a very great emphasis on the possibility that the Soviets

might do one of these limited strategic attacks. It has sounded very strange to the public, and I want to make it, if I can, one degree less strange by supplying the context of that discussion. Schlesinger, as of 1974, emphasized that we needed counterforce weapons, in case the Soviets hit a few of our missile bases or a few of our hardened weapons of some sort. We needed the capability to do likewise, so we needed more accurate weapons. Why would they do that, the question was raised. Likewise, just a few years later, Paul Nitze strongly emphasized the possibility for the Committee of Present Danger, that the Soviets might go further than that and actually launch an attack on all of our hardened missiles, landbased missiles, and the Minute-Man silos, carefully avoiding our cities. This would give us the option either, as he put it, quite misleadingly, of retaliating on Soviet cities and thereby starting a city-busting exchange, which would be suicidal for us, or as Nitze has put it, surrendering.

This was the major argument given for the MX in its mobile or survival form, on the argument that if the Soviets did this, hit our Minute-Man missiles, not being able to hit our MX, which was concealed from them in some fashion, the MX would then be able to go and disarm them of their landbase capability to threaten our cities. You see, the whole premise of this as a reason for buying a weapons system, which would cost scores of millions of dollars, seemed awfully thin, but there was something left out of that analysis, the real premise on which the Soviets might do such a thing. I think that I'm in a position to infer that pretty well, it so happens, for reasons you'll see. There is in fact, maybe I said some of this last week, I can't remember what I said last week, there is in fact, one occasion on which the Soviets might

launch such an attack. To do it out of the blue as a surprise attack, would be most promising for them in its effects, in its ability to find us unalert, so forth, but the uncertainties of that attack, clearly rule out a Russian leader, who deserved to be outside, let's say, an American insane asylum. It's easier for them to get in their insane asylums, they only have to depart from established policy, over there, to be judged insane. He would have to be clinically insane by almost anyone's standards, to accept the ominous uncertainties of such an attack, which would leave us with thousands of warheads in the hope that we would not use them, because we'd be deterred by their residual forces. It would be insane to choose that over peace, even if this alternative of peace didn't look good, even if things were going against them, even if their economics were bad, even if they were losing in some marginal wars or something, this would not make sense for them to do.

As I did, I believe, suggest last week, or I mean to, there is one occasion in which such an attack would make some strategic sense, and that is as a preemptive attack, when the alternative is to be struck first by the United States. If they expect a U.S. attack, by whatever forces, then a Soviet attack, in which they avoided cities, hit what they could hit of our strategic forces and hoped to deter the use of the rest by threatening us with the use of their residual reserve forces. None of this has a high prospect of achieving survival. Not only does it not have a guarantee, it doesn't even have much chance of avoiding annihilation, but it has better chance than alternative forms of attack, under those circumstances.

An alternative would be to hit our cities at the onset; then we'd have no disincentive to using our remaining submarine forces at full scale

against them, or even against their cities. Likewise, if they hit our command in control, Washington and other command posts at the beginning, which is normal military planning by the way, as far as you could use the word normal for military planning of this sort, the result of that would be to make it impossible for the U.S. to withhold its submarine forces. So the possibility of this kind of coercion would vanish. Thin as the chance might be, of such a strategy working, it could look better than to await a U.S. attack on their strategic forces, and their command in control, and perhaps their cities, all at once.

The argument might not appeal to you, even in preemptive circumstances, as a way of launching a preemptive attack, if you ever think of such a thing. I know it appeals to Nitze, because I wrote that plan, as a preemptive plan, under Nitze when he was assistant secretary. Although I wasn't actually aware of it at the time, a reading of Nitze's earlier papers that I've done since, recently in fact, reveals to me how compatible my plan must have been with his own thinking, because, in fact, his 1956 article shows very similar logic. In fact, it isn't that hard. The plan looks odd in the context of nuclear war as we've heard about it, but you are almost inevitably led to it, if you think seriously about what you would want to do with your forces, if, in fact you had been attacked.

By the way, it's not only a specifically preemptive plan, I wrote that as a retaliatory plan, essentially, on the assumption that even in retaliation, an early attack on enemy cities could only be disadvantageous, it could only give up your ability to end the war, which must depend on threats of residual forces basically. Even in pure retaliation or in preemption, your best chance of limiting damage to the United States and ending the war, was to

follow this sort of attack. Why hasn't Nitze simply made that clear? That what appears to be, as Geld describes it, an absolutely bizarre attack on the Soviet Union, and which is a bizarre attack, if you think of it as a preventive war attack out of the blue. Why doesn't he simply explain that this is what the Soviets might do in retaliation or in preemption? Well, let me suggest, that it is not in the interest of Nitze and the forces around him, to focus American attention on the possibility that U.S. forces are of a nature that might stimulate a Soviet preemptive attack. That might worry American tax payers and raise questions as to why they were buying forces that might tempt or pressure the Soviets into a first strike, and that is what we are doing.

Well, again, why are we doing it? Now, I come back to the, this is a long excursion, but this is really where I wanted to get with the slides, so you'd get the pictures eventually. But the analysis is this; the reason we are buying such forces that do, in fact, create the possibility of a Soviet preemptive attack, is to raise in the Soviet minds, even in an age of overall parody, the possibility that the U.S. would escalate the first use and escalate, if necessary, beyond that, to higher forms of attack, limited strategic war on our own, for example. The purpose is to deter Soviet nuclear retaliation to nuclear first use by the U.S., practically, to assure, by a threat of escalation, that if the Soviets struck second, if they replied to our use of our use of tactical nuclear weapons, we would have too great a likelihood, in their eyes, of escalating that, possibly, to an all-out first strike or to a limited strategic retaliation.

First, the objective and then how is this accomplished. Why is this an objective? Soviets do not have a significant ability to

project conventional forces outside of their own immediate borders, any great distances, to confront ours. But they do have a capability of giving nuclear support to those allies or clients anywhere in the world, that doesn't take aircraft carriers or amphibious ships, rockets are capable of doing that, even planes, long range planes with nuclear weapons can do that at very great distances. The Soviets have been capable then of doing, what we call extending a nuclear umbrella, over allies distant from them, mainly in the third world. That is, threatening to retaliate with nuclear weapons to anyone, specifically the U.S., who use nuclear weapons against those allies. Not only are they capable of it in principle, they are clearly conscious of that as a possible policy, they've used it, at least as a bluff.

Chris Troff referred to that possibility in 1956, in the Suez crisis, when I was in Alexandria Harbor, actually in the Marines in the Sixth Fleet, evacuating Americans in that war. Chris Troff was busy saying that the Russians had the capability of hitting London, Paris, and he implied the United States, this amounted to extending a nuclear umbrella against the U.S. The implication, by the way, was that they might even go to use. This was at a time when they had no strategic forces whatever, and if they had done that, would have been certain of total annihilation without any possibility of retaliation, but it was an indication of what they thought was a legitimate use of their own nuclear weapons, if they had some.

Likewise, the same threat was made in connection with Cuba in both 1960 and 1961, that the Soviet Union could defend its friends from its own borders. In fact, in denying late in 1962, at the eve of, at the beginning of the missile crisis, and denying that they had put nuclear

weapons in Cuba falsely, the Soviets made, again, the statement, "We have no need to put weapons that far away, we can protect Cuba from within our own borders by nuclear weapons, if necessary." Well, yes, they had ten operational ICBMs at that point. So they did have, in fact, a need to put RIBMs close to Cuba, if they were to carry out such a threat.

The point is, that they have made such threats, we have always anticipated them making such threats, and even though, slender and implausible as they were, those threats did not keep us out of those particular situations. I think we can infer that such threats in the minds of U.S. decision makers were of definite concern, and that the plausibility of such Soviet threats in the future was to be minimized. The threat posed by parity, was above all, I believe, was that the Soviet Union could extend that nuclear umbrella plausibly to other countries of the world, and thus, keep us from matching their national forces, whether civil war, insurgent forces or the forces of a regime that we were fighting with our threats of nuclear first use and taking that away from us.

The vulnerability we feared then was so much a vulnerability of U.S. to Soviet nuclear attack, but a vulnerability of U.S. interests, a vulnerability of the U.S. global sphere, vulnerability of, what I think is quite properly, technically called the U.S. empire, in the sense, of what I said before, of the indirect empire, as that concept was used, or informal empire, as it was used, by the British, with regards to their own imperial controls in the early nineteenth century, which went very far beyond their actual occupation or colonial control. That was the vulnerability we worried about and that was the vulnerability that was threatened by Soviet parity, or simple retaliatory capability.

That explains, I think, why we were so concerned about the Soviet A-bomb. The use of the threat of the U.S. posture has always really been based on the willingness to trump by several orders of magnitude, not just to say we were matched violence, not to say that we would marginally go beyond escalate, but an ability to say you must not confront us, you must not get involved with us, because what we are risking is that we will greatly raise the level of violence. That required a kind of U.S. superiority, a technological superiority, a nuclear superiority, to make that plausible. The Soviet A-bomb then, in 1949, did not confront us at all with a risk of surprise attack, essentially no one, that did not even enter into military planning at that point, but the appearance of that A-bomb did create panic. The panic was that our threat to initiate nuclear war, whether in Europe or elsewhere, was now put in question, because it was now much less plausible that we could greatly afford to increase the level of violence because the Soviets, it seemed, might well choose to match us at various levels.

The same, I think, explains what is otherwise, rather puzzling, why the panic about the possibility that the Soviets would get an H-bomb first, which was a possibility. In fact, Teller continues to maintain in some people that the Soviets did get an effective H-bomb first. This appears to be extremely misleading, according to Herb York. We did get it first, as usual, but we might not have, especially if we had restrained our own efforts, as Oppenheimer and others wanted. But why were you bothered? As Oppenheimer and others said, if the Soviets attacked us with H-bombs, we had enough large A-bombs to retaliate at, virtually, the same level, by that time, by the early and mid fifties. We had half megaton A-bombs. Now notice, even

our MX warhead, the latest model on the drawing boards, is half a megaton. The current model of the Mark XIIIA warhead is 350 kilotons, compared to 500 kilotons. So, that's an H-bomb, but we had A-bombs that were that big, and that is big enough for any destructive purposes. We don't need bombs bigger than that. So what did it matter if the Soviets had a bomb that was, in fact, bigger?

What mattered could not really be understood if you imagine that the U.S. had a no first use policy or if you thought that the only problem was deterring Soviet nuclear attack. What mattered was deterring Soviet nuclear retaliation, in prospect, to our use of nuclear weapons in the Third World, and in particular, the mystique, the aura, that whatever the other side did, we could do bigger and better. If the Soviets had broken through to an H-bomb sooner, it would have destroyed that idea of technological superiority on our part that would have made it plausible that we were always willing to escalate the level of conflict and that we could do so safely. Even a small number of Soviet H-bombs, which would not be the basis for any effective first strike by the Soviets, still gave them an effective retaliatory capability. If they could only get a few weapons through, H-bombs do that retaliatory job a lot better even than half megaton A-bombs for the retaliation mode. So the H-bomb presented us with the possibility of effective Soviet retaliation and that did have the possibility, to be said, of upsetting the U.S. system of world order.

You could think of other examples then, I think that all fall into the same pattern. The continual worries that the Soviets might get merves ahead of us, of which there was really no prospect, and you will have forgotten that, but that was a flurry in 1969, or that they would get ABM ahead of us. None of

these things, none of these make any difference, essentially, as far as the fighting when actual war goes. The difference they make is in the image that this U.S. presents a willingness to be the first, and main one, to throw around nuclear weapons unilaterally, for that we have to look far ahead.

The last point on this, and in a way, it sums up what I was trying to say last time, in which I made the mistake of trying to fit in to the black, male framework of these matrices. Actually, I think that approach, I had worked it out formally, beforehand, if you work the thing entirely through, those of you who might have looked at my paper, The Crude Analysis of Strategic Choice. I think the framework is suggestive if you do it rather rigorously, what I tried to do last time, was not to do it rigorously, just to use it in a suggestive way, and I don't think that it works, even if I had been in better health to work it, I couldn't even follow it myself last week. But, putting that aside, the point I wanted to make is a rather difficult one, I wouldn't even try to an audience this general, let's say, except that I think that it is important to understand what is going on now. So it is this. It's not clear that the U.S. can, in any real sense, achieve superiority ever again, unless the Soviets stop competing, which is possible, and Reagan, personally, seems to be betting on that somewhat but essentially no one else in his administration really is. No one believes it except Reagan and Richard Pipes, as far as I've been able to find out, that this will happen.

So, if not superiority that is gained by these weapons, what is gained? How could they be worth having, if they don't give you superiority? Let me start from the conjecture that what they're after is now, as before, and particular now, is to make it plausible on some basis

that the United States, let's say, will escalate a nuclear war under some conditions, and that that fear is to keep the Soviets from retaliating even to U.S. first use. So the U.S. could use nuclear weapons unilaterally, not on the whole against Soviet troops, but against Soviet allies, as we've threatened to do in the past. Possibly, even against Soviet troops with clearly less assurance that we'd get away with it. But let's say Soviet troops where they shouldn't be, and perhaps knew they shouldn't be, invading Pakistan, as we would see it, or invading Iran, or something like that. How can this be made credible without the old strategy, which is no longer available to us, opposing an enormous superiority, the Soviet Union?

Let me describe the situation we are actually getting into, as I'm sure I said last week, as compared to the late sixties, in which neither side had a significant ability to preempt, to have any advantage by going first, rather than second. We are heading now into a situation, in which both sides will have a significant capability to disarm the other, if it goes first, and the sooner, the better, from this point of view. That is an absolutely new situation. Earlier, the U.S. alone had a strong ability to disarm the opponent; later, neither had such a capability, in the sixties. That first situation lasted, perhaps as long as the first twenties years of the nuclear era, but then from, roughly, 1964 to the mid-seventies, neither side had any significant ability to disarm the other. Even in that situation, the U.S. did pose a threat of going to nuclear war, in 1969 under Nixon and Kissinger, again in 1973, under Nixon and Kissinger, as Bleckman points out. And yet, I wonder if they could have done that, if they really had thought through, strongly, what they were risking and

what they were posing in 1973. Granted, they saw the risks, the stakes, as very high, but as I read that Bleckman article, I asked myself, I wonder if it wasn't quite important as they said, that all this happened so suddenly, that they didn't even bother to discuss what they would do if their threats were called, and if the Soviets did put troops into the Middle East. They were threatening nuclear war, but it was nuclear war of absolute parity, in which we had no ability whatever to limit the damage to ourselves, striking first or any other way. I want to say, even in that situation, man does not rule out these threats, which I would say, shows how desperately we feel that we do depend on those threats, we can't estree?? them even in a situation of total parity. But if the President had not been drunk, had not been absent from that particular crisis, if they had had a couple of days to think about it, instead of a couple of hours in the middle of the night, could they really, in 1973, have gone on this alert and made the threats as much as they did? Obviously, that's not an ideal position from which to make such threats.

The situation is different, and I would say different, now, and different in a way that these same people perceive as improving their ability to make threats. And we know from this entire era, I would say, that these particular people, Kissingers, Nitzes, Schlessingers, and a number of others, do regard U.S. ability to make credible threats as absolutely central to our position in the world, to world order, to humanity, to the interests of all, to our survival, to everything they can imagine, in contrast to some other stratagems. Well, the situation is different now, as I say, in that for the first time the Soviets have a significant ability to disarm the United States, although they would

still leave us with most of our warheads, since most of them are at sea and beyond their ability to destroy. Still, since 1981, as recently as that, for the first time, they now have the ability to, on paper, possibly to target and to perhaps destroy all of our land based missiles, 25% of our warheads. We have the ability now, to target more than 25% of their overall forces, a large part of their land based forces, which are a major part of their forces. We can't, however, target all of their land based forces, neither side has, what could be called, a strong preemptive capability. Each side would inevitably leave the other with enormous residual forces, if it preempted. It would have to hope, in desperation, the other side did not use those forces, if it was to escape annihilation, it might have some such hopes, but it would be a very desperate hope.

What the United States has been buying in the last couple of years, in the Carter Administration, and during the Reagan Administration, and heading toward longer than that, is the capability to target all the Soviet forces. That is, their forces in, all of their land based forces, either a couple of hundred MX would do that, or a combination of the MX, the Minuteman 3, and submarine accurate missiles that are coming along. That is the body of their forces, the main part. The U.S. has an asymmetric ability to attack their submarines, which is very large, hard to give, it hasn't been tested that much. It's hard to give any assurance as to just how many of their submarines we could get, but we have worked toward and have considerable ability to track with attack submarines every one of their ballistic missile submarines, perhaps to find them. We've spent a generation putting hydrophones and sonar apparatus of various kinds on the floor of the oceans, something that

the Soviets would require equally long to do, and haven't started to do, in order to track ours. So, they have no comparable capability at all, like that, and probably never will have. We have a growing capability to target their submarines, once they are located. The plans that are going ahead strongly for anti-ballistic missiles of various kinds, are clearly plans to take out the remaining missiles that may have escaped our offensive attacks, in general. And indeed, Civil Defense would be the caper of all that, to deal with those warheads that did manage to get through, in theory, all this ignoring nuclear winter, which does change some of these calculations. The Soviets, since they can't target our submarines, can't target all of our forces the way we could target all of theirs. We are heading toward that, however; that doesn't necessarily give us the significant advantage.

The situation I'm describing, which will appear with a combination of the Pershing and the MX, plus our anti-submarine warfare, is a situation in which one side has quite a strong incentive to preempt, incentive in the sense that we could calculate that it would make a big difference to us if we went first, rather than second. In that circumstance, both sides may preempt, one or the other might preempt, because they can expect, they have stronger reason than they ever had before, to imagine that we might be on our way to attack them. And if they fear that, even though their own ability to limit damage is not very great and not as great as ours, they could be led to, in a heavy crisis, attack us. So, it's not the case, then, that we are heading into a situation where only the U.S. might preempt. Quite the contrary, if it were not the case that the Soviets had any incentive to preempt.

This is the complicated part, but I will try to convey it. If it were not the case that the Soviets had any incentive to limit damage by preempting, it would be hard for us to threaten, to warn the Soviets, plausibly, that we might preempt, in a heavy crisis, because we would have no reason to believe that we were, in fact, under attack. When radar warning tells you that enemy warheads are on their way, you don't have to believe them. Our radar has told us that every couple of weeks for years, as in the movie, Wargames, those actual paths have been coming in, either because of computer failures, simulations put on by mistake, faulty circuits, and whatnot. But in every case up till now, our lower-level leaders, our decision makers, our higher-level leaders have taken the time to find out, on the assumption that, probably, this was a mistake. If it wasn't a mistake, it was greatly to our advantage to be off and running as fast as we could, to attack their remaining missiles. We chose not to do that, on the assumption that, it must be a mistake. Early on, we knew that they did not have the missiles, it had to be a mistake. Later, they had so few, actually Atchison's memoirs describe an incident in the Korean War in 1950, just precisely when Prime Minister Attley had, he spends two pages on this one, flew across the ocean to protest Truman's mentioning of nuclear weapons, in connection with our Marines being surrounded at the chosen reservoir.

Attley was there, then, to keep us from using nuclear weapons, and in that precise moment, warning came over our radar systems that we were under attack, while Attley was in Washington. Atchison describes one of his subordinates, this is in 1950, now, one of his subordinates coming to him and saying that he must inform his wife of the danger here. This is in a period that what which we were fearing was Soviet bombers, at most, on one way

missions, so it took a long time for them to arrive, you did actually have a good deal to do, to get out of the way. Atchison said, you must under no circumstances, do this, get a hold of yourselves, stick by your post man and so forth. And eventually, it turned out, that they had apparently picked up a flock of geese. Well, that was not the last time that happened. Our more fancy radars, year after year, mistook flights of geese for possible attacks.

In another case, when the ???, a ballistic missile early warning system, was first turned on, I was at Rand at the time, when they first turned on the radars, there was a group of IBM executives visiting, who had helped to put in all the computer systems for this visiting NORAD headquarters, and as, essentially, it was turned on, ballistic missile warnings began appearing on the screen. A few, a lot, hundreds, a shower of missiles were on the way. The IBM executives were pushed into another room fast, again, just like in Wargames, out of the way. And in that case, it turned out, that the ??? was hitting the moon, bouncing off the rising moon, in fact, and returning echoes from that, and they hadn't filtered out those echoes because they hadn't believed the radar was powerful enough to do that, so they got a missile attack. That was in 1960. In 1960, we knew the Soviets did not have the hundreds of missiles being shown on that screen, so it had to be an error.

Today, for other reasons, they do have the missiles, I should say ten years ago, ten years ago, they did have the missiles. But again, how could you believe they were attacking us, especially if there was no war on, especially if they weren't, or we weren't losing a war; but even if they thought we were losing a war and might preempt, they had nothing to gain by launching those missiles fast;

they might as well wait. It would not save a single Russian life to do so. Such an error this year, would be less easy to dismiss than it was last year. And that is not only, or even primarily, well, it's not only, because the Soviets now have an SS18 Mod4, since 1981 only, which would give them an incentive to attack, if they thought we were. It is also because they conceive we have an ability to attack if we think they're attacking, that's way we may be attacking. Suicidal though it might be, it might be regarded by us as less catastrophic, less suicidal than waiting for the other side.

The Pershings, in particular, as I say, really changed that situation, because their radar screen, if they were watching it now, would tell them either we wait fifteen minutes and decide whether this is a false alarm or not, taking the chance that if it is not a false alarm, we are paralyzed by attacks on our command, or we take the chance that it is not a false alarm, and we go, we move right now, and as I said, that is the decision that might have to be programmed into a computer, if they're not to be paralyzed at all.

I am saying that I think the situation will get significantly worse just two years from now, when the MX begins to go in, or three or four years, as significant numbers of MX go in. And as our submarine missiles get more accurate with NAVSTAR, which is shown on the slides, but I seem to have chosen to spend the time without the slides, our NAVSTAR, our global positioning system, it's a satellite system that will give us positions of our nuclear submarines, so precisely, for the first time, that even submarine missiles will get accurate enough to destroy hardened silos. The Soviets could not attack the submarines, but if they thought they were about to be attacked by submarines, they could be pressed to attack what they

could attack. If the Soviets did not have an accurate SS18, we would have no more reason to believe that we were under attack, even in a major crisis, than we did ten years ago, but they do have it. If we did not have the MX or the Trident accurate submarines, again, we would have little reason to believe the Soviets were attacking us, little reason for us to preempt, because there wouldn't be much we could do about it. Now, as I say, we have to some degree, this interaction of expectations already, and it is about to get very much worse.

I had an article here, I won't take the time to quote it, although it's very striking, by John Steinbrenner, in the Scientific American, and I don't think that I put it on your list, so I'll give you the reference. It's recent, January, 1984, "On Launch, Under Attack", Scientific American, by John Steinbrenner. I'll quote just one paragraph from it, on the vulnerability of command and control on both sides. "Military commanders aware of these problems will not have confidence in the net performance of their forces once serious disruption of the command system occurs." And as I said, that "serious disruption" would occur with the explosion of tens to scores of nuclear weapons in the atmosphere, which would disrupt high frequency, which would interrupt cable communication, disrupt radars, command is likely to disappear, above some threshold of number of simultaneous explosions.

So the ability to command forces, that means a two-sided tactical nuclear war might be impossible to limit because it would be impossible to control. It would almost, necessarily, spin out of control, as neither side really knew what was about to happen or what was about to happen to its strategic forces. This factor translates into a very strong incentive, says Steinbrenner, who is an

expert on this matter, to initiate offensive operations before damage occurs, in order to insure both the timing and coverage of targets necessary to achieve military objectives. It also identifies the opponents command system as the target of greatest opportunity and the most likely means of achieving victory. As I suggested, hitting it could also assure that you experience all of the opponents' remaining forces; there's no way to deter them, you can't control those forces or withhold them anymore. So, unless they are paralyzed, which is possible, and offers a chance for victory, it is also possible that you suffer total annihilation rather quickly as a result of hitting his command and control. But the advantage of this is, the only way to get a victory is quite overwhelming for military men, who have always judged their success and their competence, by that possibility of winning victory.

Thus, the two opposing strategic forces appear to inpose on each other powerful incentives for preemption, as the most promising means of conducting nuclear war, promising, very promising. But the most promising compared to any of the, here's the paragraph, "Neither can guarantee such coordination after the first fifty or one hundred nuclear explosions have been absorbed. If war should ever appear unavoidable, military commanders on both sides, charged with executing their assigned missions would inevitably seek authority to initiate and attack, whatever prior national security policy may have been." I believe that is a very good prediction of military behavior on both sides, given the technology we are both investing in. "They would do so with a forcefulness, that would depend directly on the intensity of the crisis.

The pressures on political leaders at that point would be severe. Although there is no

reason to doubt their continuing desire to avoid war, there were strong reasons to doubt their ability to containing their respective strategic organizations. Which means that on both sides, under the pressure on the military of an expectation that if things go on as they are, at that moment, even hours more, they will totally lose their ability to command their military forces and lose a large part of their forces as well. The pressure on the military to get the political leaders to strike first would be so intense, Steinbrenner is saying, it could really probably not be resisted, which is a polite way of saying, they wouldn't wait for the political leaders to say no. They would have the capability of moving without them, in their own best sense that they were doing something with the most ominous consequences, and yet, something that had to be done under these circumstances, in a way that their leaders could not possibly be expected to appreciate and you didn't have time to educate them. If they didn't understand that you're about to lose, that they were about to lose all of their command capability, then that was too late, you were going to have to go ahead without them, essentially. And military leaders have shown that kind of consciencetious, dedicated initiative throughout history. They are now armed in a way they've never been armed before, and they know that. They know the dread consequences of what they are doing, they also are facing consequences that no military leaders have ever been forced to contemplate before." So, I think those two considerations would balance out considerably, and they would use the kind of initiative that military people have been willing to do in such crises before.

That defines a dangerous situation for the world, surely, and when Gelb describes this in the New York Times, in pretty much these

terms, he does not shrink from concluding that the situation is dangerous now, it is getting more dangerous. And that is not an orthodox arms controller's assumption, that despite the high level of weapons in the world, the risk of deliberate war in a crisis is significant now, and will be greater some years from now. That's a major shift in Gelb's own thinking, by the way. He is not only a journalist, you may know, he was head of political military affairs in the State Department under Carter, and is by now very educated on these matters. What he doesn't explain is how this was allowed to arise. What motives may have led to the toleration of this evolution? Partly, that may be because he can't imagine there was any way to stop it, he doesn't consider that, one way or the other. A lot of people with his background, I think, would omit that, this just happened, technology drove this, increasing accuracy was inevitable, that's true. People at Livermore, people at the design labs, people in Russia were comparably bound to want to improve their weapons in this way, all that is true.

Why didn't the political leaders overt this, because there were several ways they could have done it? One theory would be, this is a question that I pose, one answer would be; they had no power over their own laboratories, over their own industrial complexes, over their own military, experience doesn't show that. In fact, when presidents have really wanted to kill a weapon and have devoted enough effort to do it, like the B-1 bomber, or postponing the Neutron bomb, they actually have managed to do that. Freeman Dison(?) said we might as well get the Neutron bomb. In 1960, he wrote an article in Foreign Affairs because it was unstoppable. You can't stop technology, that's where technology is, there is no way to stop it, so we

might as well get it first, best, quickest, and so forth. But in fact, it was stopped, for well over a decade by political decision, by Kennedy and Johnson, it turned out not to have been unstoppable. Likewise, the B-70's, or the B-1 now is on its way, but its predecessors were held up for something like twenty years, when they really wanted to do it.

Why were the developments I'm talking about not stopped, strangled somehow, given the risks that they pose? There is one major way that it could have been done, by bilateral agreement. One excuse it could have been given to even industry, and to the public, and to the Congress, which industry for all their regrets, for all their lost profits, would have found hard to argue with, as a reason that they should not be allowed to go ahead with these developments, would have been an agreement with the Soviet Union, that would have said, if we don't do it, they don't. We avoid Soviet SS18s, Soviet merves(?), Soviet accuracy by foregoing our own, and there is no other way to do that, and that's true. Maybe the Soviets would not have agreed to such a proposal, even though they themselves made such proposals repeatedly. It was likely that the U.S. would reject such proposal as we did, as our presidents did, so we don't really know for sure whether the Soviets made the offers in good faith, we can't tell that.

Alva Merdal(?), who is one of the senior disarmaments specialists in the world, Nobel Prize winner recently from Sweden, concluded in her very good book, The Game of Disarmament, after years of work on this, that the Soviets had not been in good faith, that was her conclusion at that time. I think she's changed her mind a little since, actually. But her disillusionment was, how can we tell the Soviets meant what they were saying? They were sure to face rejection; in

any case, they weren't tested, and that's a fact. Why did no president choose to test them, no president has ever sought to find out if the Soviets were prepared to end the arms race across the board?

Specifically, we have, of course, undertaken comprehensive test ban negotiations over a long period of time, until Reagan. I think it is simply not unfair to say that no administration has on balance and as a matter of policy, actually taken as a high priority the achievement of a comprehensive test ban. Even though I think several presidents in their own personal hearts, would have liked to see a comprehensive test ban, but as president, brokering a number of interests, responding to major interests in our society, like the labs, like very strong, cold warriors in Congress and elsewhere, no president has really, I would say, strongly pushed for achieving a comprehensive test ban. No president has proposed the foregoing of nerves, would we alone have them, the testing of ballistic missiles, flight testing of ballistic missiles. Any of these measures would have prevented the coming into being of the weapons that Gelb and others are worrying about now. As I'm saying, no president proposed them, tried to get them, and that tells us something, not only about presidential involvement in this process, which is also revealed by the fact that these presidents fought rather hard for some of these weapons, such as the MX and for Merve. Nixon sought, tried hard for ABM, this was all before Reagan. And as I say, did not try to cut it off with a bilateral agreement.

I think we can reasonably infer, if not preferences on their part, at least a willingness, as part of a societal compromise, a deal, a willingness to see this two-sided instability come into being. And let me imagine then, and this is, I confine it to, a

very speculative inference, which I get a lot of resistance on when I discuss it with people, as in my seminar, so I'm not presenting to you that is self-evident or necessarily true. What I do notice, that if you take as given, or as a hypothesis, the interest in maintaining U.S. first use threats throughout the world, in Europe and elsewhere, then two-sided vulnerability, a two-sided counterforce capability has some merit, in supporting that. Just say that it has some merit that offsets its disadvantages, its risks, the risk of all out nuclear war. The merit is precisely what Steinbrenner has described as a risk; the ability to pose to the Soviets that if they retaliate to our use of nuclear weapons, they are risking all out war. Even though that is, probably, suicidal for us, and even though we have no real superiority, Steinbrenner asserts that it is a fact, and a fact clearly known to the Soviets. The situation of our use, a limited use of nuclear weapons, and we wouldn't have to use one hundred or fifty weapons against a Third World power to protect our Marines, or our rapid deployment force, or even against a Soviet division or two, if that's all that we were facing in a round, or even a handful of persons.

In other words, nuclear war can be stable and it can be won, if it is unilateral. And it can be unilateral if it is used against a country that does not have nuclear weapons, even if though that country is an ally of the Soviet Union, if the Soviet Union is deterred from retaliating to that use of nuclear weapons. That is what we've been trying to do for thirty years, one way or another. It struck me a few months ago, that this is a new way to do it, not a very good way. It's a lot better to have superiority; it's a lot better to have invulnerability from the Soviets. But if it's the only way you have, it does offer

itself as a basis for that continued policy. A threat of going out of control, of preemption, in this sense, is not something that only one side can have, as I've spelled out a few minutes ago. If we had no reason for believing that the Soviets might possibly choose, themselves, to preempt, our own threat to do so would not be credible, or warning to do so would not be credible. We have to have some vulnerability to the Soviets to have the incentive ourselves to press on, to escalate, to go further, so they have to a counterforce capability, too, if this is to be a credible threat.

That is what we have, we are getting more of it on both sides, and I notice that this is happening with the active role of the President, in pressing for the U.S. weapons that are part of this, with the certain consequence that those weapons will be imitated by the Soviets, within a few years, with the exception, then, of that consequence and with no effort, whatever, to try to avert this whole process. That suggests to me, that we've had presidents, who, however reluctantly, on balance, have concluded that U.S. interests depend on maintaining nuclear threats in the world, and to do that, it is better to have two-sided instability, two-sided counterforce, preemptive capability, two-sided vulnerability, than for neither side to have that, because we have to have it. And not only is it worth our getting it, even, if the Soviets also get it, for us to have, this is the new point, the following point, for us to have a real threat that this situation could blow up if you retaliate to us, we need some vulnerability to Soviet forces, otherwise it wouldn't blow up, we'd keep it under control.

So, that isn't to say we want to maximize our vulnerability, and we're not doing that. In fact, as we buy this counterforce capability, we also add

deterrent forces, retaliatory capabilities, submarines, other ways of hardening our satellites, hardening our command control, making us less vulnerable. The reason we need all that new, additional retaliatory capability, I want to put to you, this is an important subsident(?) point, is only because we are simultaneously posing a preemptive threat to the Soviet Union. And because we propose to strain our Type 1 deterrents by using nuclear weapons, possibly threatening them, and possibly using them in combat against allies of the Soviet Union. The only reason we need more than a couple of Polaris submarines to deter the Soviet Union from an all out attack, which is surely enough to deter or prevent a war attack, a war out of the blue from the Soviets, is because the Soviets might be under much greater pressure than that to attack us. We propose to put them under that greater pressure by the weapons we're buying, the threats we are making, the interests we are protecting in the world, if they choose to challenge us, if they choose to make allies of people we determine must be crushed. Under those circumstances, then, the Soviets could be under great pressure to attack us, rather than to see their own allies annihilated by nuclear weapons. That probably isn't enough, itself, rather than to fear that if they don't strike, we will attack, and we would not pose that threat to them, that risk to them, if we weren't somewhat vulnerable, optimally vulnerable, not maximally vulnerable, somewhat vulnerable.

Maybe it's pressing too far to try to explain by this approach, everything that fits into it, an awful lot of things do fit into it. A least gyristically it's interesting to see where it might go. Scullcroft??, you'll find in the Scullcroft Report, gives only one basic reason for the MX, and that is to deter conventional

attack, or limited nuclear attack. A question for the class, which is more credible as a weapon that might actually be used in the event of a Soviet conventional attack, an MX at sea or invisible mobile basing, multiple basing of some sort that could afford to wait during that conflict without fear that it would be destroyed, which was Carter's basing for expensively, or an MX in a fixed silo, which in the event of a major war in Europe or elsewhere, would be facing destruction if it were not used promptly? In which case is it more credible that the weapon will actually be launched? Isn't it the fixed silo? I noticed that is what we've got, that doesn't necessarily mean that we would have turned down an ability to protect the MX if that had come really cheaply. But it does mean at the least, that an MX in a fixed silo, vulnerable as it is, dangerous as it is, looked better than no MX at all. And you can't explain that if Type 1 deterrents is all you're after, because it does attract attack. It could explain some other things: why the Air Force was interested in putting it in a fixed silo in the first place, as you saw in the reading back in 1968, and basically why it wasn't worth spending a fortune to appear to make it look less vulnerable, because it's disadvantages in the fixed silo were offset by some advantages, close to necessary advantages. The MX really doesn't look very credible, otherwise, in a fixed silo, it does look credible, as Steinbrenner says. It doesn't even take a false alarm to set it off. Anything that purports to limit your damage in a nuclear war by cutting down on the other side's forces will work better, the sooner you get it off the ground.

A lot of the people, I was just talking to somebody at Livermore, for the first

time in a long time, I spent a couple of hours with the Livermore scientist, the weapons man, who has been strongly changed by the civil disobedience actions, initially, at Livermore, and made to think about what was going on, what he's doing, and is reconsidering his life a good deal, not secretly so much. He's engaging in a lot of discussion, and he told me, I was very interested that there is discussion going on at Livermore of just these things at this time. He confirmed for me what I would have guessed, that most people at Livermore imagine themselves to be limiting damage in a war by the counterforce weapons they're designing. They have no thought of first strike in mind. The fact remains, and he agreed to this, too, you can design a weapon for retaliatory force, for use, for limiting damage on a second strike, but that weapon, in virtually every case, will work better, if you use it a) before the warheads you are attacking have gotten off the ground. If you're trying to limit damage, you really shouldn't wait until you see warheads on your radar screen, pretty hard to get them at that point, especially with no ABM system. At best, you can get the warheads that are still behind, that haven't yet been launched. Better to do your attack on the silos before those warheads have appeared on your radar screen, and before your own command control has been destroyed, before you've lost most of your forces, including your bigger ones.

So, the pressure over the project, over twenty years, really, of worrying what you would do if deterrence fails, and how to limit damage in that case, leads to building systems that, inevitably, confront a decision maker with an advantage to going first, if it looks likely that he's going to

have to use those weapons at all. And, to say that the people at Livermore may not have thought of how that related to strategic objectives, but the people in the White House, who don't work for weapons manufacturers, and aren't weapons design manufacturers, have also pushed these weapons. Is it because they had no awareness of the vulnerability problem? No awareness that the Russians would imitate what they did? Plausible, but that's just not true.

When we get the accounts, like Elizabeth Drew's account, like Fred Kaplan's account, like the MX account, of how the decision making was made, we find that the predictions of what the consequences would be of these things would have been made repeatedly at high levels, for many years over this time. The Midgetman, for example, the notion of a single warhead missile as being more mobile and being less threatening, which we're now hearing in addition to the MX. That wasn't just somebody's new idea, it was always perfectly obvious that if which we worried about was a Soviet surprise attack only, that was a better weapon, instead of the MX, from the beginning. As in addition to the MX, it can't possibly begin to compensate for the destabilizing effects of the MX itself. I remember when that was announced, Scullcroft was proposing MX plus Midgetman. I fantasied, if I were asked for a comment on that, commenting that this would be readily understood by anyone who has ever been tempted to diet by eating Metrocal with their regular meals, and with their dessert, this is the stabilizing feature of the Minuteman. In fact, the people who do this, Scullcroft is perfectly well aware of that analysis. Why isn't he fighting it? I would say because he's been part of a consensus for a

generation. He may not regard the MX, itself, as necessary; he probably doesn't, but he understands the argument for it. He's not putting his career on the line, his future access to presidents on the line, his ability to contribute to policy process in future, et cetera, et cetera, and put his children through college, and all the rest of it. By resisting the MX, as he could have done in the position that he was given by the President, commissions have bucked their traces before and come out with conclusions the President didn't want, more than once, this one didn't. I do find it easy to guess in the end, that he simply doesn't see it as urgently bad, as I do, or as Gelb implies, because he does see what others do see in it, that it has some advantages.

It makes the world a dangerous place, yes, to some extent, unconditionally, the chance of a false alarm is kind of beyond our control, a Russian false alarm, which the MX could cause to lead, given the existence of the MX, a Russian false alarm could lead to an attack when it wouldn't otherwise. I would say there is a danger of attack on our land based missiles, there will be in 1990, there isn't to any significant degree now, the MX will create that danger, which scarcely exists now. The combination of the MX and the Pershing will do that strongly. I don't say the risk is nothing now, because with the Minuteman 3 and the SS18, which came later, the risk is not zero, it used to be zero of a deliberate attack. So, deliberate policies of the men in office throughout this generation, I would say, certainly from their point of view, with the best intentions, the best interests of the United States, as they saw them, have created for this country, the risk of all out war, what they misleadingly purport

to be minimizing, to be trying to avert at all costs.

How is that compatible with their having good intentions? Because in their hearts, they believe something they don't tell the public, that we have vital interests that go beyond the defense of the United States, itself. Interests so vital, that they are worth, and they justify risking thermonuclear war, two-sided thermonuclear war, to maintain those interests. They don't count on the public putting the same value on those interests, which include, for example, beating down essentially every interest, every instance, of revolutionary upheaval in the Third World, that would subtract that area from U.S. economic system, or U.S.-dominated Western Capitalist economic system, whether or not that particular area is of any economic significance to the United States, directly or not, Vietnam was not, for example. But because success of such a revolutionary effort could lead to efforts elsewhere, by other revolutionaries in areas that we did care a lot more about, such as the Middle East, with its oil, or other resource, mineral rich areas. One of the Reagan officials said, "The difference between us and Reagan and Carter is that Carter is, that Carter worried about oil, we worry about oil and minerals," mainly Africa and, specifically South Africa. And for these interests, which they don't expect the American public to perceive as being worth a heightened risk or an avoidable risk of thermonuclear war, they therefore have to keep this particular strategy from the American public.

And I think that some of the peculiarities of our policy do reflect the fact that along with the objectives that I've described, that these particular people have seen, don't include all our

presidents, but to whom all our presidents have responded as political reality. They've had the problem, not only of making our threats credible to our enemies, but of keeping our public from thinking about them at all, or being very aware of them. The very desirable from a credibility point of view, have had to be estrued??? at least for the moment, because they would arouse too much public controversy, that's particularly true of civil defense. It turned out to be true in 1969, of the ABM, 1968, 1969, because that was a weapon that would be in everybody's backyard, if you made a big program. People didn't want the weapon nearby, and that led them to look a little harder at it than they would have otherwise, and it didn't look good to them, or effective. So, the public costs of that program outweighed the advantages that we sought to have.

Reagan is now working to educate this public, with only limited, spotty success, I would say, to accept the kinds of policies that his predecessors have pursued all along. That's the big difference, I think, with Reagan. And I think it's partly because Reagan, and the people with him, were recognized, correctly, ten years ago, as extreme ideologues, right or wrong; they were seen as wrong on the whole part by many other people, but certainly, correctly perceived as, essentially, fanatics on this subject, true believers; they are different in that respect. Their policies aren't that different, though, and I think the reason they're more open about them is not only that they believe in them more, they sincerely want to share this understanding with the public. But they do pull back from that when it proves imprudent, but also because of the expense of attaining this kind of credibility against

Soviet forces, twenty thousand Soviet nuclear weapons. The costs of assuring that only the U.S. can provide this nuclear first use umbrella around the world, can assure our allies that, if necessary, we will initiate the use of nuclear weapons. It's very expensive to make that unilateral, to keep the Soviets from doing something much less than that, which is, simply, assuring their allies that they will retaliate, if the U.S. uses nuclear weapons, that's less taxing to make credible. And to keep it from being credible is very expensive. It costs a large part of the trillion and a half dollars Reagan is proposing to spend. And to explain that kind of expenditure, you simply can't do it by relying on the old cover story that all you're doing is protecting against Soviet surprise attack, that is a purpose the U.S. public accepts for nuclear weapons.

And to the extent that you can pin our programs, I'm talking not only Reagan, but Carter and all, the extent you can pin our programs entirely on defending against Soviet surprise attack, you will get U.S. public support. That involves enormous deception, and which is, rather, in the end, hard to maintain. I think the purpose of making this enormous MX missile mobile, in Carter's planning, was for no other purpose than to fool the public into thinking it was a deterrent weapon, a weapon of deterring Soviet nuclear attack, the only basis on which the public was ready to buy it. That's an objective, to fool the public, it's worth a good deal of money. My guess that the Soviets, that we would always end up, and I guess that we would end up putting the MX in fixed silos, reflected my model, that that wasn't the main purpose of the MX, and that the cover story was just too expensive.

By the way, technology did not force you to go to an MX-sized missile; you could have used the greater accuracy to make very small missiles, whose warheads would be big enough with their great accuracy, and with their small size, you could make them mobile in many different ways, underground, the kinds of things they proposed for Carter, so the MX would have been much cheaper with a much smaller missile. You could have easily put it at sea in various ways, you could have used the Trident missile, which is a smaller missile. Or you could have even put in on air, which they tried, they thought of doing with the MX, this enormous MX whose enormous size is not in order to survive attack, its enormous size is to create Soviet vulnerability. It's to threaten the Soviets with large numbers of very large, as well as accurate, warheads to destroy them, so, that was why it's as large as it was.

You may have noticed in the MX reading that the Minuteman 3 silo was built large enough for a large weapon like the MX, larger than the Minuteman 3, so that they would be able to put it in. I was talking to an expert the other day, and mentioned this to him, at U.C.L.A., and it hadn't occurred to him, I said, how do you think they've managed to put the MX in the Minuteman silo, it's a lot bigger than the Minuteman, everybody knows that, and that's how it was sold. To go into psychology here, a little, one major aspect of the way it was sold to Congress, was by giving almost every congressman a set of plastic models, made by some manufacturer. Many copies were bought by the Committee for Present Danger and Coalition for Peace and Strength??. And every congressman had a set of models that showed these puny, stick-like, Minuteman Poseidon warheads, in white, by the way, and then the Russian

missiles in black, enormous, monstrous things, towering over these absurd, little U.S. solid fuel missiles, compared to the Soviet inaccurate liquid fuel missiles. In other words, the size of their missiles reflected the backwardness of their technology, essentially, but the size was a major psychological factor. The MX was chosen as the largest missile that would fit in a Minuteman silo, as I said I said to my friend at U.C.L.A., you know, how did you think they got it into a Minuteman silo? Well, he said, "Well, I didn't think about it, I thought they expanded it." I said, "How do you think you expand a steel and concrete silo, you know, a sort of shoe stretcher, of some kind, you just get in there and shove it apart?" Somebody in the Air Force prudently had realized the Minuteman would not be big enough to cover all the targets you would want to cover, as time went on. They did not decide it would be easier to protect a large missile, it's harder to protect a large missile.

So, the technology we chose to pursue was the technology of large missiles for first use threats, the only reason for thinking of making it mobile, which was not the original plan, was because Congress was saying, isn't this only for deterring nuclear attack, and if so, how can it do that from a Minuteman silo? And so they talked about moving it around, and doing this and that with this ??? with a missile, and I was sure that in the end, that that cover story would simply prove to be too expensive to maintain, and that they would serve to do it more cheaply.

Coming up to the last lecture, next time, I would like to, it occurs to me because some of the questions I've gotten from people in the last couple times, and outside of class, have brought up a couple subjects

that I haven't dealt with much, and that I might have just pushed aside, but I think I will tie them together next time. Mainly, what was the education of Daniel Ellsberg in this subject. That's one way to put it. It makes it look more personal than I had in mind, actually. I think, though, that I will tell, in a more connected way than I've done for any other audience, what I thought I was doing in 1961, working on the war plans, how Vietnam changed my thinking in a number of ways, and how the Vietnam War got ended. Large parts of that, I think, are considerably hidden, certainly if you haven't read Hirsche's book, a lot of that is revealed in there, for most people, and it's worth knowing. Because I think the lesson of how the Vietnam War got ended, is one of the few positive bases I can give, but a very good one, for imagining how this arms race could get ended. And, I think a lot of minds are going to have to change in the course of that, and a lot of people are going to have to be influenced by other Americans, if this is to come about, and so it's not irrelevant or to ???for me to talk a little bit about what I know best, which is how one war planners mind was changed in the course of this, and how his relation to this was changed, and how that did in fact come to interact with the ending of a war. That war, as I've mentioned earlier at one point, I think was not easier to end by the American people, than the arms race will be to end, and there was no guarantee that it would be achieved, that it was achieved, and so it is an example that we must, we're obliged really to take very seriously and to try to understand.